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A taxonomic review of the genus *Stenolechia* Meyrick, 1894 (Lepidoptera: Gelechiidae: Litini) from China, with descriptions of three new species

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Abstract: Species of *Stenolechia* Meyrick, 1894 from China are reviewed, including three new species: *Stenolechia longivalva* **sp. nov.**, *Stenolechia curvativalva* **sp. nov.** and *Stenolechia cuneata* **sp. nov.**, and three new records: *Stenolechia kodamai* Okada, 1962, *Stenolechia insulalis* Park, 2016 and *Stenolechia notomochla* Meyrick, 1935. The previously unknown female of *Stenolechia insulalis* Park, 2016 is described. Photographs of adults and genitalia are provided, along with two keys to the Chinese species based on the male and female genitalia.

Key words: Gelechiodea; Gelechiinae; taxonomy; new records; species group

中国狭麦蛾属 *Stenolechia* 分类研究及三新种记述（鳞翅目：麦蛾科：特麦蛾族）

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摘要：本研究对中国狭麦蛾属 *Stenolechia* Meyrick, 1894 进行了分类研究，共记述 7 种，包括 3 新种：长瓣狭麦蛾 *Stenolechia longivalva* **sp. nov.**，弯瓣狭麦蛾 *Stenolechia curvativalva* **sp. nov**. 和楔狭麦蛾 *Stenolechia cuneata* **sp. nov.**，3 中国新记录种：凯狭麦蛾 *Stenolechia kodamai* Okada, 1962，音狭麦蛾 *Stenolechia insulalis* Park, 2016 和暖狭麦蛾 *Stenolechia notomochla* Meyrick, 1935，并首次描述了音狭麦蛾 *Stenolechia insulalis* Park, 2016 的雌性。文中提供了成虫和外生殖器特征图，并分别依据雄性外生殖器和雌性外生殖器编制了中国狭麦蛾属分种检索表。

关键词：麦蛾总科；麦蛾亚科；分类；中国新记录；种团

Introduction

The genus *Stenolechia* was proposed by Meyrick in 1894 to replace the generic name *Poecilia* Heinemann, 1870. *Recurvaria nivea* Haworth, 1828 was originally designated as the type species of *Stenolechia* by Meyrick, 1894 but was negated subsequently because *R. nivea* had not been originally included in the *Poecilia* Heinemann, 1870. Meyrick (1925) subsequently redesignated *Phalaena* (*Tinea*) *gemmella* Linnaeus, 1758 as the type species of the genus *Stenolechia*.

Stenolechia has been classified in the tribe Litini (Sangmi & Richard 2008) and includes 14 species from Palaearctic and Oriental regions up to now (Meyrick 1925; Kanazawa 1984; Park 1994; Huemer & Karsholt 1999; Bae *et al*. 2014; Park & Kim 2016). Kanazawa (1984)

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① Corresponding author, E-mail: lihouhun@nankai.edu.cn studied the Japanese fauna of *Stenolechia* and divided them into three groups: the *notomochla* group, the *bathrodyas* group and the *rectivalva* group. As for China, only *Stenolechia bathrodyas* Meyrick, 1935 had been recorded prior to this study (Hua 2005).

This paper describes three new species, the previously unknown female of *Stenolechia insulalis* Park, 2016, and three new records of Chinese fauna. All mentioned species belong to either the *bathrodyas* or the *notomochla* group.

Material and methods

Specimens used in this study were mostly collected by light traps in mountainous areas in China. Permanent slide mounting methods for genitalia follow the techniques introduced by Li (2002). Images of adults and genitalia were taken using a Leica M205A stereo microscope and a Leica DM750 microscope plus Leica Application Suite 4.2 software respectively. Images of genitalia were refined by Photoshop CS6 software.

All studied specimens, including the types of the new species, are deposited in the Insect Collection, Nankai University, Tianjin, China (NKU).

Abbreviations. KNA — Korea National Arboretum, Pocheon, Korea; NHMUK — Natural History Museum, London, United Kingdom [formerly British Museum (Natural History)]; NKU — Insect Collection, Nankai University, Tianjin, China; TD — Type depository; TL — Type locality.

Taxonomy

Genus *Stenolechia* Meyrick, 1894

Stenolechia Meyrick, 1894: 230.

Gibbosa Omelko, 1988: 152.

Type species. *Phalaena* (*Tinea*) *gemmella* Linnaeus, 1758.

Diagnostic characters. Head smooth. Labial palpus with second segment hardly with thickening; third segment a little shorter than second segment, apex pointed. Forewing with several dark-coloured costal, discal, plical and tornal spots (Fig. 1). Male genitalia with uncus rounded or crown-shaped; gnathos comprised of a rectangular basal-plate, a pair of lateral arms and a microtrichiate median process; tegumen long, sub-rectangular; sacculi connect with juxta and vinculum; juxta with a pair of processes on posterior margin; phallus fused with apex of saccus basally (Figs 2, 13–18). Female genitalia with apophyses posteriores extremely long; some species possess lamella postvaginalis; apophyses anteriores usually acicular; antrum small; ductus bursae usually vimineous; corpus bursae with a pair of signa (Figs 6, 19–23).

This genus resembles *Angustialata* Omelko, 1988 in the wing pattern and male genitalia, but can be recognized by the forewing with a length-width ratio less than 5, and the strong sacculi which connect juxta and vinculum. While in *Angustialata*, the forewing with length-width ratio is greater than 5 and the sacculi are not well-developed. In addition, the valva is probably the most variable trait of this genus.

Host plants. Before this study, plant species in three families, Cupressaceae, Pinaceae and

Fagaceae, had been recorded as host plants of *Stenolechia* species (Okada 1962; Kanazawa 1984; Park 2012).

Distribution. The genus *Stenolechia* was predominantly recorded from the Palaearctic Region prior to this study (Okada 1962; Kanazawa 1984; Park 2012; Park & Kim 2016; Sinev *et al.* 2019), but the species *S. bathrodyas* Meyrick, 1935 has also been reported from America (Eichlin 1980).

Key to the Chinese species of *Stenolechia* based on the male genitalia

1. Eighth sternite and tegumen both with two bundles of long hair-tufts (the *bathrodyas* group)	2
-. Eighth sternite and tegumen both without long hair-tufts (the *notomochla* group)	6
2. Valva longer than tegumen (Fig. 16)	*S. longivalva* **sp. nov.**
-. Valva shorter than or same length as tegumen	3
3. Valva strongly curved inwardly at distal 1/4 (Figs 2, 13)	*S. curvativalva* **sp. nov.**
-. Valva almost straight	4
4. Valva not reaching tip of caudal processes of juxta (Fig. 15)	*S. kodamai*
-. Valva reaching tip of caudal processes of juxta	5
5. Valva about 3/5 length of tegumen (Fig. 14)	*S. insulalis*
-. Valva about same length as tegumen (Park 1994: 285, fig. 9)	*S. bathrodyas*
6. Valva flattened and with distal half wedge-shaped (Fig. 17)	*S. cuneata* **sp. nov.**
-. Valva slender, flagelliform (Fig. 18)	*S. notomochla*

Key to the Chinese species of Stenolechia based on the female genitalia

1. Signum T-shaped (the *notomochla* group)	2
-. Signum blade-shaped and serrulate (the *bathrodyas* group)	3
2. Eighth sternite with a pair of semicircular lobes anterolaterally (Fig. 22)	*S. cuneata* **sp. nov.**
-. Eighth sternite with a pair of semicircular lobes posterolaterally (Fig. 23)	*S. notomochla*
3. Lamella postvaginalis absent	4
-. Lamella postvaginalis present	5
4. Ductus bursae about 6× length of eighth segment (Fig. 21)	*S. longivalva* **sp. nov.**
-. Ductus bursae about 4.5× length of eighth segment (Kanazawa 1984: 103, fig. 4A)	*S. bathrodyas*
5. Lamella postvaginalis with a protuberance on posterior margin medially (Fig. 19)	*S. curvativalva* **sp. nov.**
-. Lamella postvaginalis without protuberance	5
6. Lamella postvaginalis nearly rectangular (Fig. 20)	*S. insulalis*
-. Lamella postvaginalis fan-shaped (Fig. 6)	*S. kodamai*

The *bathrodyas* group

Male genitalia with eighth tergite almost absent, eighth sternite nearly trapezoidal (Fig. 5), eighth sternite and tegumen both with two bundles of long hair-tufts on basal portion respectively (Fig. 3). Uncus nearly rounded-quadrate. Tegumen longer than 4× length of uncus, almost rectangular integrally except basal 1/4 slightly expanded, bearing long hairs along lateral margins on posterior 1/2. Valva arising from basal corner of valva-sacculus complex, flagelliform, slender, diverse in length among different species. Sacculus about 1/3 length of tegumen, leaf-shaped. Vinculum crescent. Saccus flattened, about half length of sacculus. Juxta with a pair of caudal processes, slender and heavily sclerotized. Phallus with basal part weakly connected with saccus, about 4/5 length of tegumen, gradually narrowed from truncate base to pointed apex, curved at basal 1/3 (Fig. 2).

Female genitalia with apophyses posteriores long. Eighth abdominal segment membranous; some species possess lamella postvaginalis. Apophyses anteriores usually acicular. Antrum small. Ductus bursae extremely long. Corpus bursae rounded; signa coupled, both blade-like and serrulate, crested with an irregular-shaped plate respectively, plate densely bearing micro-denticles (Fig. 6).

Most species in the *bathrodyas* group show a highly similar appearance both in wing pattern and male genitalia, especially in the shapes of uncus, gnathos, tegumen, vinculum and sacculus; so in the descriptions of the genitalia below, only characters of diagnostic significance are mentioned.

Diagnostic characters. Adult with labial palpus without thickening. Forewing with rather simple pattern.

1. ***Stenolechia bathrodyas*** **Meyrick, 1935**

Stenolechia bathrodyas Meyrick, 1935: 583. TL: Japan (Tokyo). TD: NHMUK.

Stenolechia balthrodyas Meyrick, 1935: Hua, 2005: 8. Misspelling.

Host plants. *Juniperus chinensis*, *Juniperus* sp. (Cupressaceae) (Park 2012).

Distribution. China (?); Japan; Korea; America (Park 2012; Eichlin 1980).

Diagnosis. This species can be recognized by the valva about same length of tegumen in the male genitalia (Park 1994: 285, fig. 9).

Remarks. Hua (2005) had recorded *S. bathrodyas* from China, but we haven't found further literature or evidence to verify this record, and the present study has not found any specimens of this species from China. Therefore the Chinese listing of *S. bathrodyas* is doubtful, but we have included this species in the keys none the less.

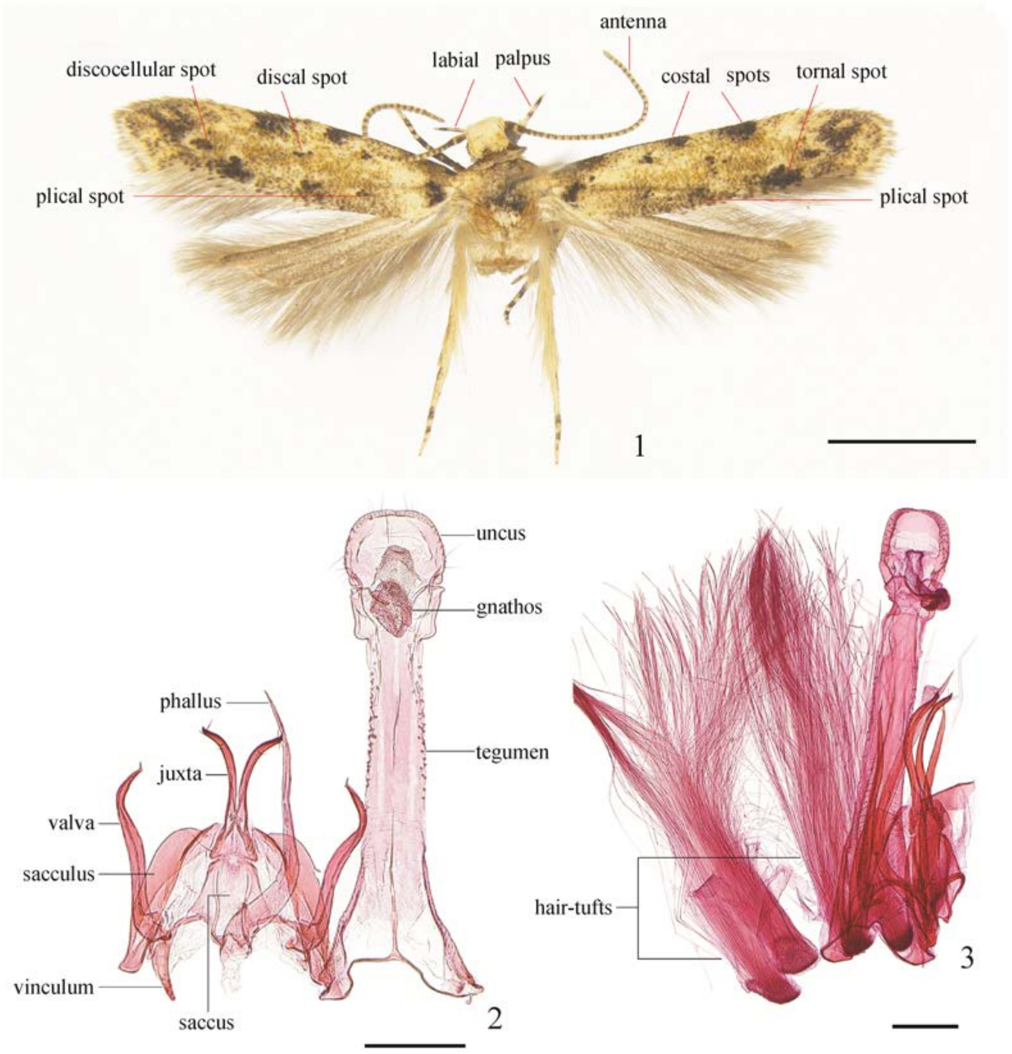
2. ***Stenolechia curvativalva*** **sp. nov.** (Figs 2, 7, 13, 19)

Description. Adult (Fig. 7) wingspan 7.0–8.5 mm. Head shining light yellow. Labial palpus blackish brown except a white ring at distal 1/4 of second segment and a white band from basal 1/3 to 2/3 of third segment. Antenna with ventral surface light yellow, dorsal surface: scape blackish brown; flagellum alternately blackish brown and light grey. Forewing ground colour white, scales tipped with yellowish brown; all spots blackish brown: costal with three spots at base, basal 1/3 and 2/3 respectively, second smaller; discal spot at distal 1/4 of cell; discocellular spot near anterior angle of cell; fold with two tiny spots at 1/3 and 2/3 respectively; tornal spot rather big, followed by a small spot inside apical angle; fringe grey to light yellow, intermixed with scales tipped with blackish brown. Hindwing and fringe dark grey. Fore and mid legs light yellow on inner surfaces, blackish brown on outer surfaces, tibiae both with a white spot on outer surfaces medially, respectively, tarsi with first two tarsomeres ringed with white apically; hindleg light greyish yellow but sprinkled with blackish brown scales on outer surface, all tarsomeres ringed with yellowish white apically.

Male genitalia (Figs 2, 13). Uncus-tegumen complex, vinculum, sacculus and phallus show typical appearances of the *bathrodyas* group (for details, see the *bathrodyas* group). Valva about half length of tegumen, strongly curved inwardly at distal 1/4, apex pointed. Juxta with caudal processes about 2/3 length of valva, arc-shaped. Saccus nearly hexagonal.

Female genitalia (Fig. 19). Apophyses posteriores about 6× length of eighth segment. Lamella postvaginalis rectangular, with two tiny processes posterolaterally, posterior margin with a small protuberance medially. Antrum indistinct. Apophyses anteriores acicular, about 2×

length of eighth segment. Ductus bursae about 5.5× length of eighth segment. Corpus bursae subrounded; signa shows typical appearance of the *bathrodyas* group (for details, see the *bathrodyas* group).



Figures 1–3. Morphology of *Stenolechia* spp. 1. Adult of *S. notomochla*, ♂; 2. Male genitalia of *S. curvativalva* **sp. nov.**, ventral view, holotype, slide No. ZML19460; 3. Male genitalia of *S. insulalis*, lateral view, slide No. ZML20029. Scales bars = 2.0 mm (Fig. 1); 0.2 mm (Figs 2, 3).

Holotype. ♂, **China**, Yunnan, Wenquan, Kunming City, 1900 m, 30-VII-2005, coll. Yingdang REN, genitalia slide No. ZML19460. **Paratypes**. 1♂1♀, same data as holotype, genitalia slide Nos. ZML20007♂, ZML20048♀. Zhejiang, 1♂, Datou Village, Quzhou City, 707 m, 07-VIII-2018, Shuai YU, Mengran XING & Chen LIU, genitalia slide No. ZML18515.

Etymology. The specific epithet is derived from the Latin *curvatus*, meaning curved, and the Latin *Valva* refers to the strongly curved valva in the male genitalia.

Diagnosis. This species is characterized by the valva strongly curved inwardly at distal

1/4 in the male genitalia; it can be further recognized by the lamella postvaginalis with a small protuberance on posterior margin medially in the female genitalia.

3. ***Stenolechia insulalis* Park, 2016** (Figs 3, 5, 8, 14, 20)

Stenolechia insulalis Park, 2016: 174. TL: Korea (Andeok, Changcheon, Jeju, Seogwipo). TD: KNA.

Description. Adult (Fig. 8) wingspan 8.0–11.0 mm.

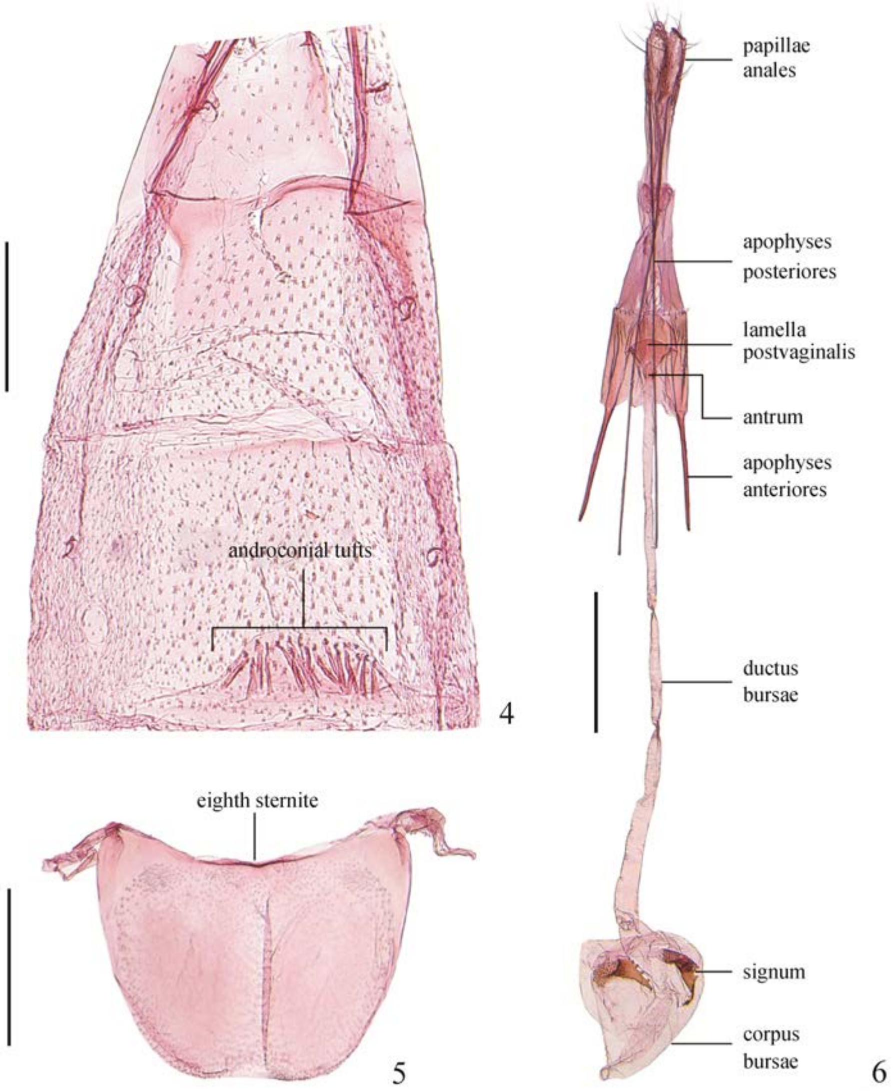
Female genitalia (Fig. 20). Apophyses posteriores about 4× length of eighth segment. Lamella postvaginalis nearly rectangular, about half length of eighth segment, posterior margin slightly concave. Antrum situated at anterior margin of the eighth sternite medially, sub-rectangular. Apophyses anteriores acicular, about 1.5× length of eighth segment. Ductus bursae about 8× length of eighth segment. Corpus bursae subrounded; signa shows typical appearance of the *bathrodyas* group (for details, see the *bathrodyas* group).

Specimens examined. **China**, Tianjin, 2♂1♀, Heishui River, Mt. Baxian, 600 m, 16-VII-2010, coll. Yinghui MOU & Shurong LIU, genitalia slide Nos. ZML19500♂, ZML20001♀. Hebei, 1♂1♀, Zhongguyuan, Mt. Wuling, Xinglong County, 900 m, 31-VII-2000, coll. Yanli DU & Zhendong LI, genitalia slide No. ZML19484♂. Shanxi, 55♂7♀, Xizhashui Village, Lingchuan City, Jincheng City, 900 m, 13–16-VII-2010, coll. Haiyan BAI & Linlin YANG, genitalia slide No. ZML20029♂. Zhejiang, 4♂2♀, Mt. Fengyang, Longquan City, 1470 m, 25–30-VII-2007, coll. Qing JIN, genitalia slide No. ZML19478♂; 1♂1♀, Huangtan Forestry Centre, Renchuan Town, Jinhua City, 909 m, 30-VII-2015, coll. Aihui YIN, Kang LOU & Tao WANG, genitalia slide No. ZML20032♂; 2♂1♀, Shimenjian, Qingtian County, 102 m, 19–20-VII-2016, coll. Qingyuan WANG, Meiqing YANG & Ping LIU, genitalia slide No. ZML20035♂; 1♂, Yujikeng, Jingning County, 964 m, 11-VII-2017, coll. Zhenguo ZHANG, Yanyan JIA & Juan LI, genitalia slide No. ZML20023. Fujian, 1♀, Maodi, Nanping City, 850 m, 22-IX-2002, coll. Xinpu WANG, genitalia slide No. ZML19476. Henan, 7♂4♀, Shuiliandong, Tongbai County, 300 m, 24-V-2000, coll. Haili YU, genitalia slide No. ZML18277♀. Hubei, 25♂10♀, Mt. Wujia, Yingshan County, 08-VII-2008, coll. Yunli XIAO, genitalia slide Nos. ZML20012♀, ZML20013♂; 15♂2♀, Mt. Wujia, Yingshan County, 635 m, 28-VI-2014, coll. Wei GUAN & Meiqing YANG, genitalia slide No. ZML20020♂. Sichuan, 1♂, Wolong, 1900 m, 07-VIII-2004, Yingdang REN, genitalia slide No. ZML19489; 1♂, Wanglang Sheep Farm, 2577 m, 19-VII-2017, coll. Mujei QI & Xiaofei YANG, genitalia slide No. ZML20024. Guizhou, 4♂1♀, Suoluo National Reserve, Chishui City, 240 m, 21–23-IX-2000, coll. Haili YU, genitalia slide Nos. ZML20027♂, ZML20028♀. Yunnan, 5♂1♀, Qiunatong Village, Bingzhongluo Town, Gongshan County, Nujiang Autonomous Prefecture, 1767 m, 14–15-VI-2017, coll. Kaijian TENG *et al*., genitalia slide Nos. ZML19490♂, ZML19491♀; 1♂, Nankang Management Station, Baoshan City, 2009 m, 20-VII-2015, coll. Kaijian TENG & Xia BAI, genitalia slide No. ZML20008. Shaanxi, 3♂2♀, Yuhua Palace, Tongchuan City, 1359 m, 30-VII-2019, coll. Shuai YU, genitalia slide Nos. ZML19364♂, ZML20005♂.

Distribution. China (Fujian, Guizhou, Hebei, Henan, Hubei, Shaanxi, Shanxi, Sichuan, Tianjin, Yunnan, Zhejiang); Korea.

Diagnosis. This species is similar to *S. bathrodyas* Meyrick, 1935 in the male genitalia, but can be distinguished by the shorter valva which is about 3/5 length of tegumen (figs 3, 14); in *S. bathrodyas*, the valva is almost same length as tegumen (Park 1994: 285, figs 9–12).

Remarks. The female of this species is firstly recorded.



Figures 4–6. Morphology of *Stenolechia* spp. 4. Androconial tufts between abdominal segments III and IV of *S. cuneata* **sp. nov.**, ♂, paratype, slide No. ZML20015; 5. Eighth sternite of *S. insulalis*, ♂, slide No. ZML20024; 6. Female genitalia of *S. kodamai*, slide No. ZML20053. Scales bars = 0.2 mm (Figs 4, 5); 0.5 mm (Fig. 6).

4. ***Stenolechia kodamai* Okada, 1962** (Figs 6, 9, 15)

Stenolechia kodamai Okada, 1962: 32. TL: Japan (Yamaguchi, Honshu).

Specimens examined. **China**, Tianjin, 2♂2♀, Mt. Jiulong, Ji County, 130 m, 09-VII-2004, coll. Houhun LI *et al*., genitalia slide Nos. ZML19485♀, ZML19486♂; 2♂, Mt. Baxian, 500 m, 08–11-VIII-2005, coll. Houhun LI *et al*, genitalia slide No. ZML19487; 1♀, Heishui River, Mt. Baxian, 600 m, 24-VI-2010, coll. Mingrui ZHANG & Shurong LIU, genitalia slide No. ZML19472; 2♂2♀, Dongshuichang Village, Jizhou, 134 m, 30-VIII-2020, coll. Mujie QI & Zhulin TAO *et al*., genitalia slide No. ZML20031♂; 1♂1♀, Zhongyuanshanggu Reserve, Jizhou, 247 m, 01-IX-2020, coll. Mujie QI & Xinghai ZUO *et al.*, genitalia slide No. ZML20030♂. Shanxi, 6♂3♀, Mt. Tianlong, Taiyuan City, 1280 m, 12-VII-2013, coll. Tengteng LIU & Peixin CONG, genitalia slide No. ZML20040♂; 1♂, Wenpuge, Manghe Reserve, Yangcheng County, 595 m, 02-VIII-2013, coll. Shulian HAO & Yunfei PENG, genitalia slide No. ZML20002; 6♂23♀, Mt. Laoding, Changzhi City, 24-VII-2014, coll. Qinwen HOU & Jun TIE, genitalia slide Nos. ZML20018♂, ZML20019♀. Zhejiang, 1♀, Qingliangfeng, Lin'an City, 900 m, 10-VIII-2005, genitalia slide No. ZML19482; 1♂, Mt. Fengyang, Longquan City, 1470 m, 25-VII-2007, coll. Qing JIN, genitalia slide No. ZML19488; 64♂33♀, Longtang Village, Qingliangfeng, Lin'an City, 500 m, 12–15-V-2017, coll. Shuonan QIAN & Ga-Eun Lee, genitalia slide No. ZML20021♂; 1♀, Mt. Jiulong, Lishui City, 509 m, 27-VIII-2017, coll. Shuonan QIAN, Juan LI & Yanyan JIA, genitalia slide No. ZML19481; 36♂100♀, Datou Village, Quzhou City, 707 m, 05–08-VIII-2018, coll. Shuai YU, Mengran XING & Chen LIU, genitalia slide Nos. ZML20044♀, ZML20045♀, ZML20046♀, ZML20047♀, ZML20049♀, ZML20050♀; ZML20051♀. Fujian, 2♂, San'gang, Mt. Wuyi, 740 m, 26-VII-2008, coll. Weichun LI, Yongling SUN & Haiyan BAI, genitalia slide No. ZML19474; 1♂, Mt. Tianzhu, Xiamen City, 220 m, 24-VIII-2010, coll. Bingbing HU & Jing ZHANG, genitalia slide No. ZML19475. Henan, 6♂10♀, Lingshan Temple, Mt. Luo, 350 m, 21–23-V-2000, 03-VI-2000, coll. Haili YU, genitalia slide Nos. ZML20041♂, ZML18276♀; 1♂, Baotianman, Neixiang County, 1200 m, 30-V-2006, coll. Xu ZHANG & Jinmei LU, genitalia slide No. ZH07445. Hunan, 7♂, Xiaolang Village, Ketou Town, Xinhua County, 03-VIII-2004, coll. Yunli XIAO, genitalia slide No. ZML19499. Yunnan, 1♂, Zhenxi Botanical Garden, Ruili City, 1000 m, 05-VIII-2005, coll. Yingdang REN, genitalia slide No. ZML19462; 5♂9♀, Mt. Weibao, Weishan County, 2244 m, 22–24-VII-2013, coll. Shurong LIU, Yuqi WANG & Kaijian TENG, genitalia slide No. ZML19494♂; 13♂10♀, Mt. Weibao, Dali City, 2205 m, 30–31-VII-2014, 02-VIII-2014, coll. Kaijian TENG, Wei GUAN, Xiuchun WANG & Shurong LIU, genitalia slide No. ZML19495♀; 1♀, Taiyanghe National Forest Park, Pu'er City, 1450 m, 03-VII-2015, coll. Kaijian TENG, genitalia slide No. ZML20053. Tibet, 1♂2♀, Milin County, 4000 m, 30–31-VII-2010, coll. Houhun LI *et al*., genitalia slide Nos. ZML19496♀, ZML19498♂; 26♂52♀, Zhamu Village, Bomi County, 2703 m, 21–22-VIII-2017, coll. Mujie QI & Xiaofei YANG, genitalia slide Nos. ZML20016♂, ZML20017♀; 6♂6♀, Sangdeng Village, Bomi County, 2695 m, 10-VIII-2018, coll. Mujie QI, genitalia slide Nos. ZML20025♂, ZML20026♀. Shaanxi, 21♂, Yuhua Palace, Tongchuan City, 1359 m, 30-VII-2019, coll. Shuai YU, genitalia slide No. ZML19466♂.

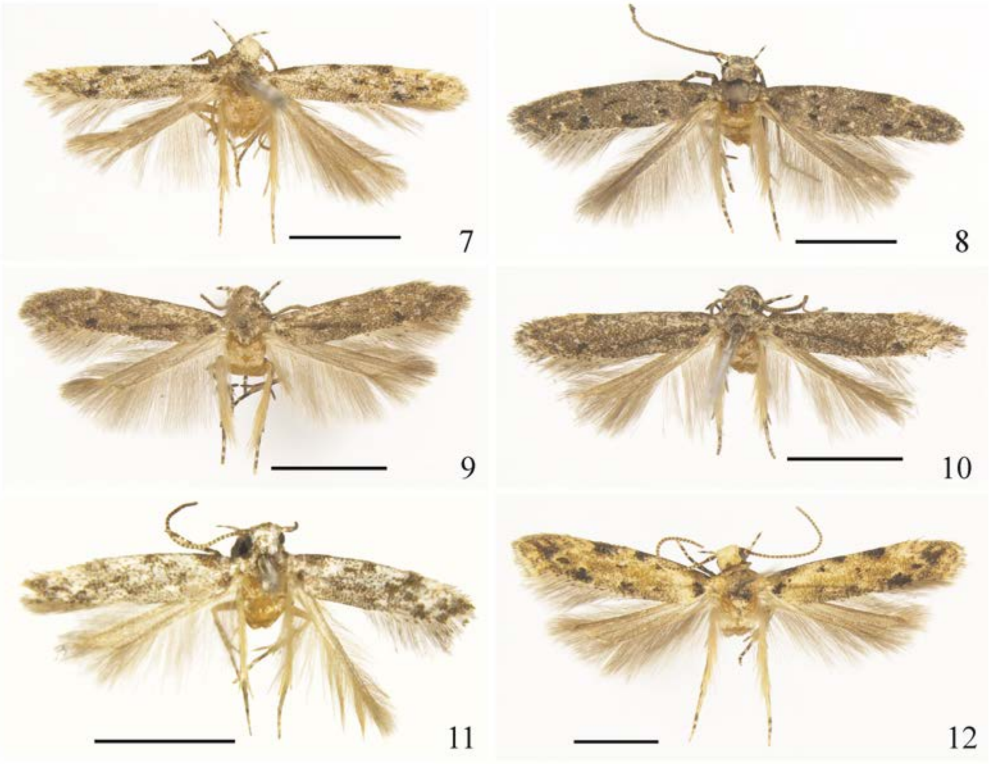
Host plant. *Pinus densiflora* (Pinaceae) (Okada 1962).

Distribution. China (Fujian, Henan, Hunan, Shaanxi, Shanxi, Tianjin, Tibet, Yunnan, Zhejiang); Korea; Japan.

Diagnosis. Adult (Fig. 9) wingspan 7.5–12.0 mm. This species is similar to *S. bathrodyas* Meyrick, 1935 and *S. insulalis* Park, 2016 in the male genitalia, but can be recognized by the valva about 1/3 length of tegumen (Fig. 15). While in *S. bathrodyas,* the valva is nearly same length as tegumen (Park 1994: 285, figs 9–12); in *S. insulalis,* the valva is about 3/5 length of tegumen.

5. ***Stenolechia longivalva*** **sp. nov.** (Figs 10, 16, 21)

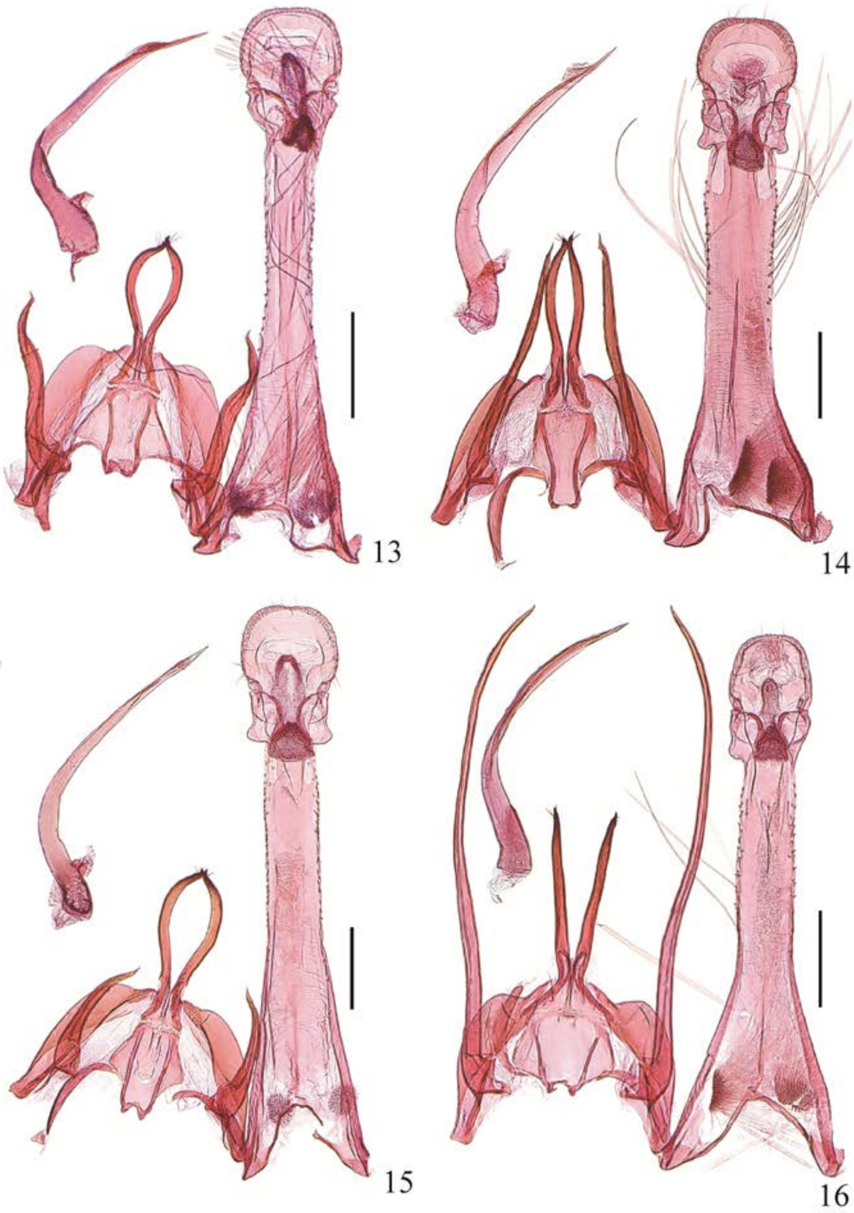
Description. Adult (Fig. 10) wingspan 7.0–10.0 mm. Head shining yellowish brown. Labial palpus blackish brown except tip of second segment and median 1/3 of third segment light yellow, extreme apex light yellow. Antenna with ventral surface light yellow, dorsal surface: scape blackish brown; flagellum alternately blackish brown and light grey, distal 1/3 serrate. Forewing ground colour dark yellowish brown, scales tipped with blackish brown; costal, discal and discocellular spots indistinct; tornal spots blackish brown; fold with two tiny blackish brown tufts at 1/3 and 2/3 respectively; some individuals with apical angle edged with a white line; fringe dark grey intermixed with long scales tipped with blackish brown or white. Hindwing and fringe grey. Legs blackish brown except inner surface of hindleg greyish yellow; all tarsi with first two tarsomeres ringed with white apically, mid and hind tarsi both with apical segment white.



Figures 7–12. Adults of *Stenolechia* spp. 7. *S. curvativalva* **sp. nov.**, holotype, ♂; 8. *S. insulalis*, ♂; 9. *S. kodamai*, ♂; 10. *S. longivalva* **sp. nov.**, holotype, ♂; 11. *S. cuneata* **sp. nov.**, holotype, ♂; 12. *S. notomochla*, ♂. Scales bars = 2.0 mm.

Male genitalia (Fig. 16). Uncus-tegumen complex, vinculum, sacculus and phallus show typical appearances of the *bathrodyas* group (for details, see the *bathrodyas* group). Valva extremely long, reaching caudal margin of uncus, weakly sinuate at basal 1/3, apex pointed. Juxta with caudal processes about 1/3 length of valva, straight. Saccus rather stout, hexagonal.

Female genitalia (Fig. 21). Apophyses posteriores about 4× length of eighth segment. Lamella postvaginalis absent. Antrum situated at centre of the eighth sternite, nearly rectangular. Apophyses anteriores acicular, as long as eighth segment. Ductus bursae about 6× length of eighth segment. Corpus bursae subrounded; signa shows typical appearance of the *bathrodyas* group (for details, see the *bathrodyas* group).



Figures 13–16. Male genitalia of *Stenolechia* spp. 13. *S. curvativalva* **sp. nov.**, paratype, slide No. ZML20007; 14. *S. insularis*, slide No. ZML20023; 15. *S. kodamai*, slide No. ZML20025; 16. *S. longivalva* **sp. nov.**, paratype, slide No. ZML19471. Scales bars = 0.2 mm.

Holotype. ♂, **China**, Zhejiang, Mt. Gutian, Kaihua County, Quzhou City, 310 m, 19-V-2017, coll. Shuonan QIAN & Ga-Eun Lee, genitalia slide No. ZML20022. **Paratypes**.

Zhejiang, 40♂46♀, 17–20-V-2017, other data same as holotype, genitalia slide No. ZML20059♀; 3♂, Shunxiwu, Qingliangfeng, 390 m, 18–19-V-2012, coll. Linlin YANG & Zhenguo ZHANG, genitalia slide No. ZML19386; 1♂, Yulingguan, Qingliangfeng, 220 m, 23-VII-2014, coll. Aihui YIN, Xuemei HU & Qingyun WANG, genitalia slide No. ZML19479; 1♂1♀, Chishui Village, Zhangshui Town, Yinzhou Area, Ningbo City, 450 m, 26-VII-2015, coll. Aihui YIN, Kang LOU & Tao WANG, genitalia slide Nos. ZML20033♂, ZML20034♀; 1♂, Huaxi Village, Anwen Town, Pan'an County, Jinhua City, 542 m, 28-VII-2015, coll. Aihui YIN, Kang LOU & Tao WANG, genitalia slide No. ZML20039; 1♂, Longtang Village, Qingliangfeng, Lin'an City, 500 m, 13-V-2017, coll. Shuonan QIAN & Ga-Eun Lee, genitalia slide No. ZML19382; 1♂, Mt. Jiulong, Lishui City, 509 m, 27-VIII-2017, coll. Shuonan QIAN, Yanyan JIA & Juan LI, genitalia slide No. ZML19480; 3♂, Datou Village, Quzhou City, 707 m, 06-VIII-2018, coll. Shuai YU, Mengran XING & Chen LIU, genitalia slide No. ZML18532. Hubei, 1♂, Lichuan City, 1100 m, 02-VIII-1999, coll. Houhun LI, genitalia slide No. ZML19483. Hunan, 1♂, Xiangshanjiang, Mt. Shunhuang, Xinning County, 921 m, 03-VIII-2020, coll. Hao SUN, Xinghai ZUO & Zhulin TAO, genitalia slide No. ZML20036. Guangdong, 1♂, Hebaodao, Zhuhai City, 30 m, 17-V-2010, coll. Bingbing HU & Jing ZHANG, genitalia slide No. ZML19464. Guizhou, 4♂1♀, Lijiaba, Mayang River, 700 m, 30-IX-2007, coll. Hui ZHEN, genitalia slide Nos. ZML19492♂, ZML19493♀; 2♂1♀, Sanchahe Town, Xishui County, 767 m, 01-VII-2019, coll. Mengran XING, Baixue ZHAO & Hao SUN, genitalia slide Nos. ZML19467♀, ZML19468♂, ZML19470♂; 3♂, Maoya Town, Suiyang County, 869 m, 03–05-VII-2019, coll. Mengran XING, Baixue ZHAO & Hao SUN, genitalia slide No. ZML19471; 1♀, Kuankuoshui, Suiyang County, 1491 m, 09-VII-2019, coll. Mengran XING, Baixue ZHAO & Hao SUN, genitalia slide No. ZML19469. Yunnan, 1♂, Zijiaosuo, Jingdong County, 1244 m, 04-VII-2013, coll. Shurong LIU, Yuqi WANG & Kaijian TENG, genitalia slide No. ZML20009; 1♂, Yuyingtang, Taiyang River National Forest Park, Pu'er City, 1450 m, 24-IV-2015, coll. Kaijian TENG, genitalia slide No. ZML20011; 1♂, Taiyang River National Forest Park, Pu'er City, 1450 m, 03-VII-2015, coll. Kaijian TENG, genitalia slide No. ZML20006. Tibet, 3♂, Yadong County, 2950 m, 28-VIII-2003, coll. Xinou WANG & Huaijun XUE, genitalia slide No. ZML19497; 2♂1♀, Shenhu, Jilong Town, Jilong County, 2772 m, 11-VII-2019, coll. Mujie QI & Jiaqi DENG, genitalia slide Nos. ZML20037♂, ZML20038♀.

Etymology. The specific epithet is derived from the Latin *longus*, meaning long, and the Latin *Valva* referring to the extremely long valva in the male genitalia.

Diagnosis. This species can be easily recognized by the extremely long valva reaching caudal margin of uncus in the male genitalia.

The *notomochla* group

Diagnostic characters. Male with androconial tufts between abdominal segment III and IV (Fig. 4) but without long hair-tufts on either eighth sternite or tegumen. Uncus crown-shaped (Figs 17, 18). Valva arising from middle of sacculus, various shapes. Sacculus rather stout. Vinculum slender. Saccus usually short, irregular-shaped. Juxta with a pair of caudal processes, usually stout. Phallus more or less arcuate (Figs 17, 18).

6. ***Stenolechia cuneata* sp. nov.** (Figs 4, 11, 17, 22)

Description. Adult (Fig. 11) wingspan 7.0–8.0 mm. Head shining white, scales tipped with brown. Labial palpus with second segment blackish brown on basal half, white on distal half, distal 1/4 to 1/5 ringed with blackish brown; third segment white, with two blackish brown rings at 1/3 and 2/3 respectively. Antenna yellowish white on ventral surface; dorsal surface: scape blackish brown except distal 1/4 white; flagellum blackish brown and yellowish white alternated, thicker in male. Thorax and tegula white, scales tipped with brown. Forewing ground colour white; costal spots at base, basal 2/5 and 3/5 respectively, blackish brown; discal, discocellular and tornal spots blackish brown; plical spot at base, blackish brown; area between fold and dorsum from basal 1/3 to end of fold sprinkled with numerous dark brown scales; fringe dark grey intermixed with blackish brown scales. Hindwing and fringe grey. Legs white on inner surfaces, blackish brown on outer surfaces; all tibiae with a white spot at middle of outer surfaces; fore and mid tarsi with first two tarsomeres ringed with white apically; hind tarsus with all tarsomeres ringed with white apically.

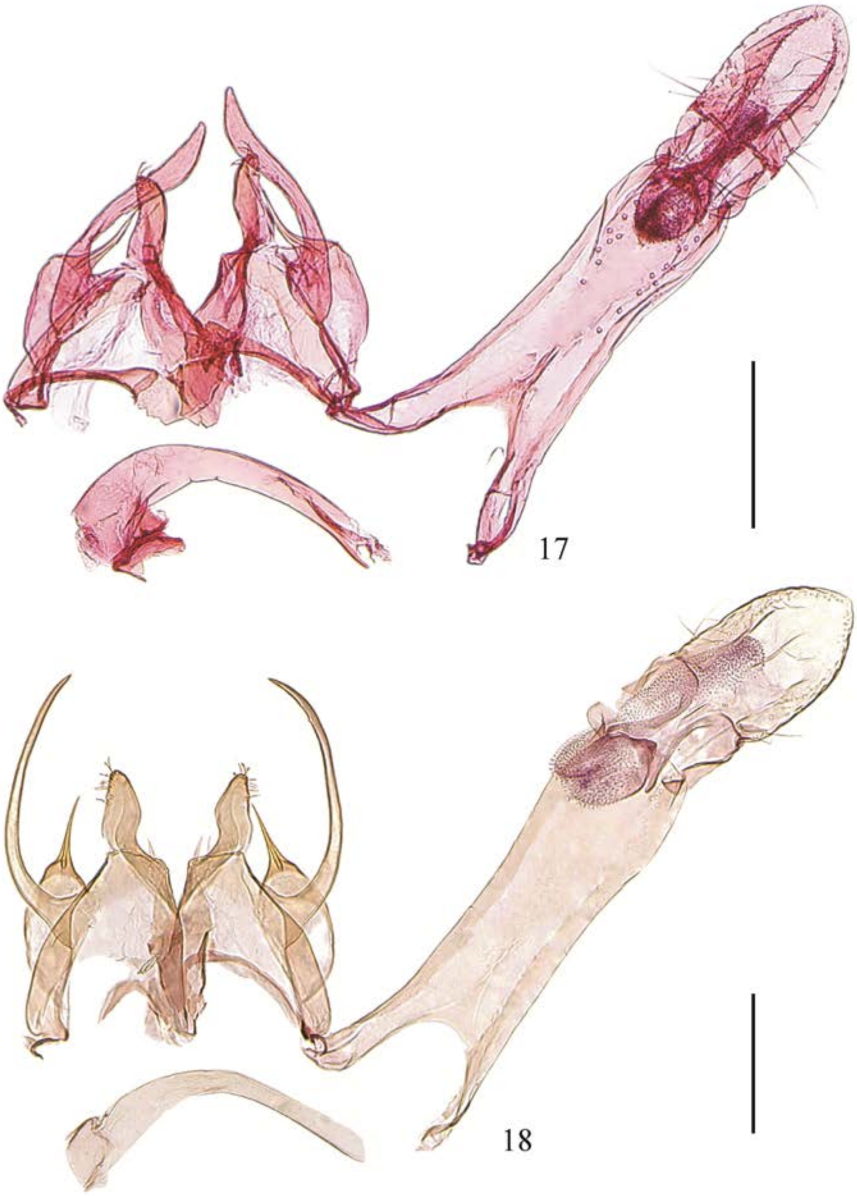
Male genitalia (Fig. 17). Uncus with basal 3/4 rectangular, distal 1/4 gradually narrowed to rounded apex. Gnathos about same length of uncus, median process sub-rounded, with a subtriangular protuberance on posterior margin medially. Tegumen about 3× length of uncus. Valva about half length of tegumen, flattened, basal half parallel-sided, distal half wedge-shaped, from basal 1/2 to 3/4 slightly widened, then narrowed to narrowly rounded apex. Sacculus about same length of valva, basal 2/3 stout and semi-elliptical, distal 1/3 sharply narrowed to needle-shape. Juxta with caudal processes about 1/3 length of valva, thumb-shaped. Saccus short, irregular-shaped. Phallus arc-shaped, weakly broadened on basal 1/4, apex obliquely truncated.

Female genitalia (Fig. 22). Apophyses posteriores about 7.5× length of eighth segment. Eighth sternite with a pair of semicircular lobes anterolaterally. Lamella postvaginalis indistinct. Antrum situated at anterior margin of eighth sternite medially, indistinctly small. Apophyses anteriores slender, about 3× length of eighth segment. Ductus bursae about 4.5× length of eighth segment. Corpus bursae subrounded; signa big, about 2/3 length of corpus bursae, T-shaped, apex acute.

Holotype. ♂, **China**, Hainan, Jianfengling Reserve, Ledong County, 1050 m, 27-IV-2014, coll. Tengteng LIU, Wei GUAN & Xuemei HU, genitalia slide No. CMT16174. **Paratypes**. Hainan, 1♂1♀, Jianfengling Reserve, Ledong County, 770 m, 04-VI-2015, coll. Peixin CONG, Wei GUAN & Sha HU, genitalia slide Nos. CMT15172♂, CMT16172♀. Guizhou, 1♂, Mt. Foding, Shiqian County, 618 m, 18-VII-2019, coll. Mengran XING, Baixue ZHAO & Hao SUN, genitalia slide No. ZML20015.

Diagnosis. This species is extremely similar to *Stenolechia notomochla* Meyrick, 1935 in the male genitalia, but can be recognized by the valva flattened, basal half parallel-sided, distal half wedge-shaped, from basal 1/2 to 3/4 slightly widened, then narrowed to narrowly rounded apex; while in *S. notomochla*, the valva is slender, arc-shaped and with apex pointed (Fig. 18). These two species is similar in the female genitalia as well, they both have a pair of T-shaped signa, but *S. cuneata* **sp. nov.** can be distinguished from *S. notomochla* by the eighth sternite with a pair of semicircular lobes anterolaterally, and the apophyses anteriores about 3× length of eighth segment; while *S. notomochla* has the eighth sternite having a pair of semicircular lobes posterolaterally, the apophyses anteriores about 2× length of eighth segment (Fig. 23).

Etymology. The specific epithet is derived from the Latin *cuneatus*, meaning wedge-shaped, referring to the shape of distal half of valva.

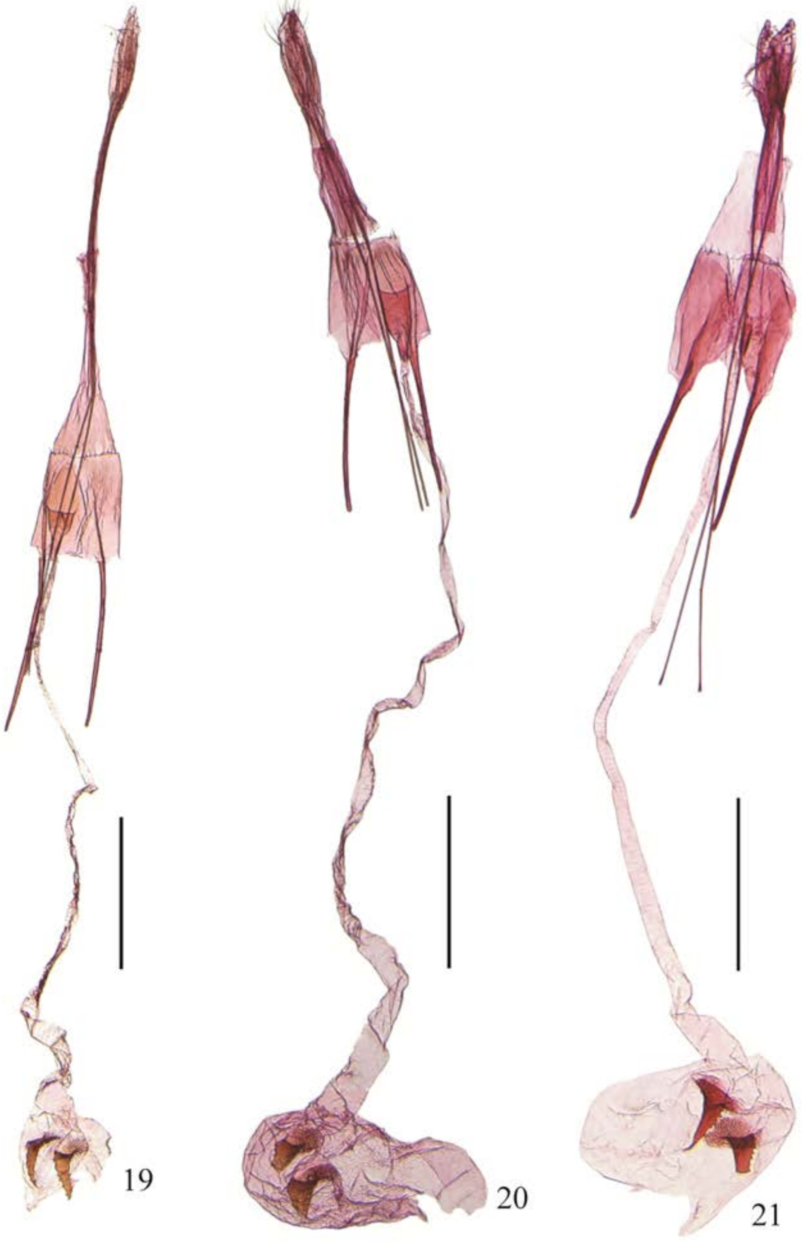


Figures 17, 18. Male genitalia of *Stenolechia* spp. 17. *S. cuneata* **sp. nov.**, paratype, slide No. ZML20015; 18. *S. notomochla*, slide No. ZH07375. Scales bars = 0.2 mm.

7. ***Stenolechia notomochla*** **Meyrick, 1935** (Figs 1, 12, 18, 23)

Stenolechia notomochla Meyrick, 1935: 583. TL: Japan (Tokyo). TD: NHMUK.

Specimens examined. **China**, Zhejiang, 1♂1♀, Shunxiwu, Qingliangfeng, 390 m, 19-V-2012, coll. Linlin YANG & Zhenguo ZHANG, genitalia slide No. LLJ15258♀; 2♂, Mt. Longtang, Qingliangfeng, 500 m, 21-V-2012, coll. Linlin YANG & Zhenguo ZHANG, genitalia slide Nos. LLJ14079♂, LLJ14082♂. Yunnan, 1♂, Taiyang River Reserve, 1450 m, 30-V-2014, coll. Zhenguo ZHANG, genitalia slide No. ZML19446.



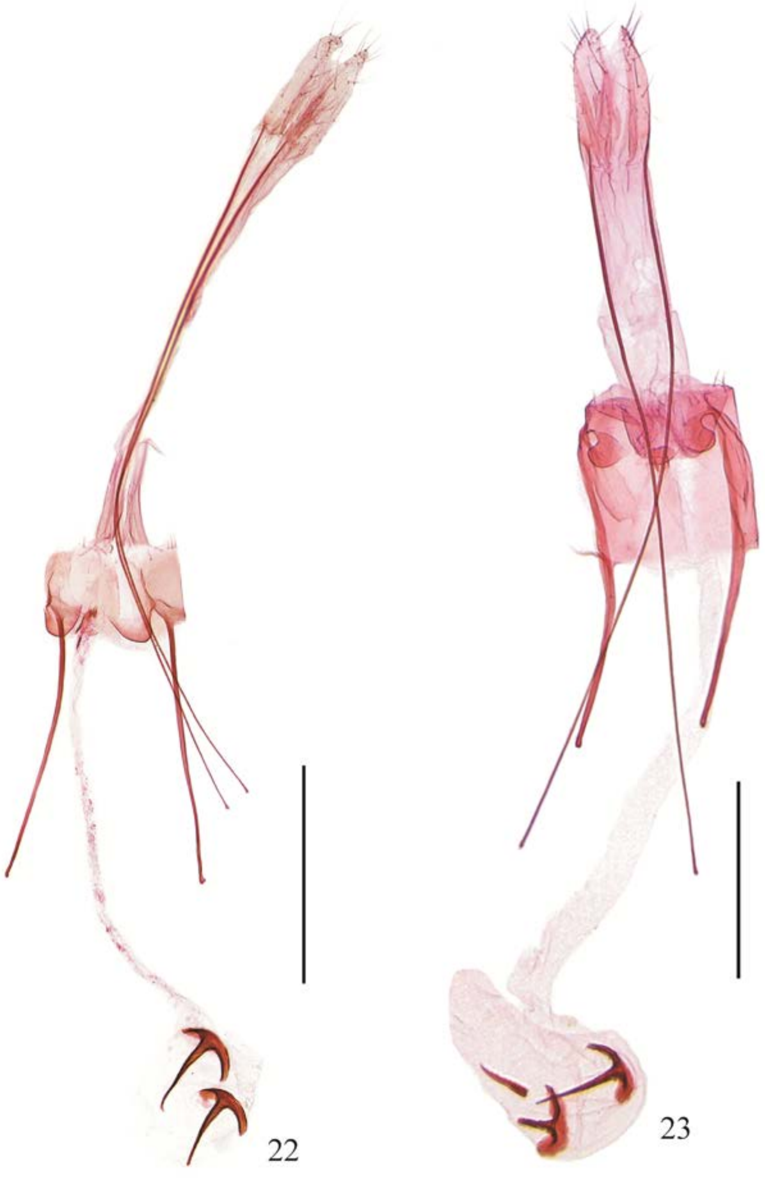
Figures 19–21. Female genitalia of *Stenolechia* spp. 19. *S. curvativalva* **sp. nov.**, paratype, slide No. ZML20048; 20. *S. insulalis*, slide No. ZML20012; 21. *S. longivalva* **sp. nov.**, paratype, slide No. ZML19467. Scalse bars = 0.5 mm.

Host plant. *Quercus dentata* (Fagaceae) (Kanazawa 1984).

Distribution. China (Yunnan, Zhejiang); Japan; Russia (Sinev & Kozlov 2019).

Diagnosis. Adult (Figs 1, 12) wingspan 9.0–12.0 mm. This species is extremely similar to

S. cuneata **sp. nov.**, and the differences between them have been stated in the diagnosis of the latter species.



Figures 22, 23. Female genitalia of *Stenolechia* spp. 22. *S. cuneata* **sp. nov.**, paratype, slide No. CMT16172; 23. *S. notomochla*, slide No. LLJ15258. Scales bars = 0.5 mm.

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